STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

Course Summary

Description

Course Description: The purpose of this course is to present the foundational areas of electrical engineering. The topics touched on in this course will help students determine their area of concentration at APUS. The topics included with varying degrees of emphasis include: Circuit Analysis; Electromagnetic Field Theory; Solid-state electronics; Electric machines; Electric power systems; Digital logic circuits; Computer systems; Electro-optics; Instrumentation systems; Control Systems. NOTE: This course requires the student to purchase additional materials that are not covered by the book grant. Please refer to the Course Materials section for additional details. Prerequisites: SCIN234 and MATH240

Course Scope:

At the conclusion of this course, students will have an understanding of electrical engineering terminology, general methodology, tools, and practices. They will also understand the basic principles of electromechanics and electric machines.

Objectives

After completing the course, the student should be able to accomplish these Learning Objectives (LO):

1. Understand basic EE concepts and terminology.
2. Articulate the concepts related to basic EE theory
4. Demonstrate the use of electric measuring instruments.
5. Understand the basic principles of electromechanics and electric machines.
6. Assess readiness for future EE courses.

Outline

Week 1: Introduction

Learning Objective(s)

LO-1, LO-4
Week 2: Resistive Circuits, Part 1

Learning Objective(s)
LO-1, LO-2, LO-3, LO-4

Readings
Chapter 2, Sections 2.1 through 2.3

Assignment(s)
Forum (responsive posts)

Lab 2
Quiz 2

Week 3: Resistive Circuits, Part 2

Learning Objective(s)
LO-1, LO-2, LO-4

Readings
LO-1, LO-2, LO-4

Assignment(s)
Forum (initial post)

Lab 3
Quiz 3

Week 4: Inductance & Capacitance

Learning Objective(s)
LO-1, LO-2, LO-4

Readings
Chapter 3
**Week 5: Transients & Sinusoids**

**Learning Objective(s)**
LO-1, LO-2, LO-4

**Readings**
Chapter 4, Sections 4.1 through 4.4
Chapter 5, Sections 5.1 through 5.6

**Assignment(s)**
Forum (initial post)
Lab 5
Quiz 5

**Week 6: Review for Electric Circuits Test**

**Learning Objective(s)**
LO-1, LO-2, LO-3, LO-6

**Readings**
As assigned in lessons 1-5

**Assignment(s)**
Test 1
Forum (responsive post)

**Week 7: Digital Logic**

**Learning Objective(s)**
LO-1, LO-2, LO-4

**Readings**
Chapter 7

**Assignment(s)**
Forum (initial post)
Week 8: Computers & Instrumentation

Learning Objective(s)
LO-1, LO-2, LO-4

Readings
LO-1, LO-2, LO-4

Assignment(s)
Forum (responsive post)
Lab 8
Quiz 8

Week 9: Diodes

Learning Objective(s)
LO-1, LO-2, LO-4

Readings
Chapter 10

Assignment(s)
Forum (initial post)
Lab 9
Quiz 9

Week 10: Transistors

Learning Objective(s)
LO-1, LO-2, LO-4

Readings
Chapter 12
Chapter 13

Assignment(s)
Forum (responsive post)
Lab 10
Quiz 10

**Week 11: Amplifiers**

Learning Objective(s)
LO-1, LO-2, LO-4

Readings
Chapter 11
Chapter 14

Assignment(s)
Forum (initial post)
Lab 11
Quiz 11

**Week 12: Electronics Review & Exam**

Learning Objective(s)
LO-1, LO-2, LO-4, LO-6

Readings
As assigned in lessons 7-11

Assignment(s)
Test 2

Forum (responsive post)

**Week 13: Intro to Communications Concentration**

Learning Objective(s)
LO-1

Readings
Various online articles listed in lesson

Assignment(s)
Forum (initial post)
Quiz 13

**Week 14: Intro to Mechatronics Concentration**

Learning Objective(s)
**Week 15: The Practice of Engineering**

**Learning Objective(s)**
- LO-1

**Readings**
Various online articles listed in the lesson

**Assignment(s)**

**Forum (initial post)**

**Quiz 15**

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**Week 16: Course Review & Exam**

**Learning Objective(s)**
- LO-1, LO-5, LO-6

**Readings**
As assigned in lessons 13-15

**Assignment(s)**
- Test 3

**Forum (responsive post)**

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**Evaluation**

**Instructor announcements:** Weekly announcements will appear on Monday of each week in the online classroom. They will also be e-mailed to each student. The announcements discuss the assignments and any other pertinent information for the week.

This is an upper level course. All students’ work is to be presented as such in terms of quality and content. The grading system is based on eight forums (20%), ten lab assignments (25%), thirteen comprehension quizzes (25%), and three exams (30%).

**Reading Assignments:** Refer to the Course Outline section of this syllabus for the weekly reading assignments.
**Week 1 Introductions:** Within 7 days of course start, you must log into the classroom and introduce yourself to the class. Your response is due by Sunday of Week 1. Your response must be a minimum of 250 words (a requirement) and include the following information.

a. Your name  
b. Your university major or program  
c. Where you are in the program of study  
d. Your academic goals, to include why you are taking this class  
e. Information that you would like to share about yourself

**Weekly Forums:** There are two kinds of discussion forums in this course. The first are for course-specific topics chosen by the instructor. These are graded assessments. The second are free-form forums for questions and topics generated by the students. Students are free to post any relevant question in the free-form forums but should avoid asking questions about specific gradable test questions. If there are questions about specific test questions, find a similar problem in the book and ask a question on that problem or concept instead. Asking questions about specific test questions creates an unfair advantage and defeats the purpose of the assessment tool.

**Exams:** There are three exams, each worth 10% of your final grade. It is an open book, open note exam. It is administered without a proctor. Students must complete the exams by the end of the week indicated in the schedule.

**Lab Exercises:** There are ten (10) laboratory exercises that must be completed in order to pass the course. Despite having completed all other requirements for the course, you must complete all of the lab exercises in order to pass the course. You must demonstrate that you are competent in using the laboratory equipment to analyze electric circuits.

**Grading:**

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<thead>
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<tr>
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Test 2 10.00 %  
Test 3 10.00 %  
Labs 25.00 %  
Lab Quiz 01 2.78 %  
Lab Quiz 03 2.78 %  
Lab 04 2.78 %  
Lab 05 2.78 %  
Lab 07 2.78 %  
Lab 08 2.78 %  
Lab 09 2.78 %  
Lab 10 2.78 %  
Lab 11 2.78 %  
Unassigned 0.00 %  
Lab Quiz 02 0.00 %

Materials

Book Title: NI Student Software Suite - this item is not covered by the APUS Book Grant  
Author: National Instruments  
Publication Info: National Instruments  
ISBN: 779252-3501

Book Title: NI Elvis Kit - this item is not covered by the APUS Book Grant  
Author: National Instruments  
Publication Info: National Instruments  
ISBN: 780381-02

Book Title: myParts Kit from Texas Instruments - this item is not covered by the APUS Book Grant  
Author: National Instruments  
Publication Info: National Instruments  
ISBN: 783752-01

Author: Allan R. Hambley  
Publication Info: Pearson  
ISBN: 9780133116649
Book Title: Additional required items are available to order from the APUS Bookstore. If you buy these items from other vendors, you may not receive all the parts you need for your course. These items (as noted) are not covered by the APUS Book Grant.

Author: N/A

Publication Info: N/A

ISBN: N/A


Please visit http://apus.libguides.com/er.php and search by the course number (ex: LITR210) to access your required resources.

Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- Tutor.com offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for ‘Tutor’ to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 20% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.
Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an ongoing discussion about the assigned content.
- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting viewpoints, we must respect each individual’s own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

University Policies

Student Handbook

- Drop/Withdrawal policy
- Extension Requests
- Academic Probation
- Appeals
- Disability Accommodations

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation’s military and public service communities by offering respected, relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.

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